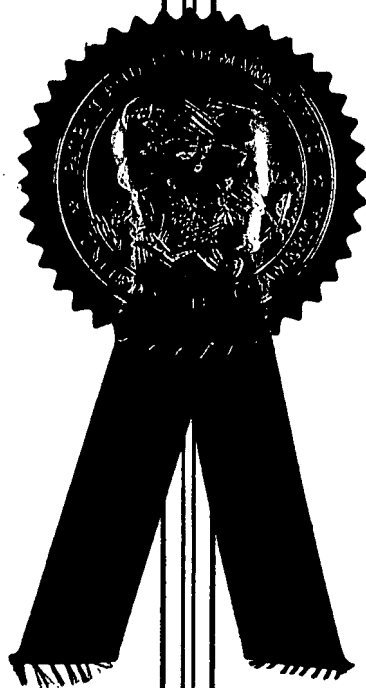


The
United
States
of
America



The Commissioner of
Patents and Trademarks

Has received an application for a patent for a new and useful invention. The title and description of the invention are enclosed. The requirements of law have been complied with, and it has been determined that a patent on the invention shall be granted under the law.

Therefore, this

United States Patent

Grants to the person(s) having title to this patent the right to exclude others from making, using, offering for sale, or selling the invention throughout the United States of America or importing the invention into the United States of America for the term set forth below, subject to the payment of maintenance fees as provided by law.

If this application was filed prior to June 8, 1995, the term of this patent is the longer of seventeen years from the date of grant of this patent or twenty years from the earliest effective U.S. filing date of the application, subject to any statutory extension.

If this application was filed on or after June 8, 1995, the term of this patent is twenty years from the earliest effective U.S. filing date of the application, subject to any statutory extension.

Bence Lehman

Commissioner of Patents and Trademarks

Margaret V. Turner

Attest

United States Patent [19]

Ishibashi et al.

[11] Patent Number: 5,596,663

[45] Date of Patent: Jan. 21, 1997

[54] FIBER OPTIC MODULE

3-218134 9/1991 Japan
2087681 5/1982 United Kingdom

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[51] Int. Cl.⁶ G02B 6/00; G02B 6/36

[52] U.S. Cl. 385/92; 361/785

[58] Field of Search 361/785, 760,
361/761, 783; 385/88-94

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58 Claims, 18 Drawing Sheets

[57] ABSTRACT

A fiber optic module includes a connector connected to a mother board of a host computer, an LD semiconductor IC for converting serial data received from the mother board to an LD electric signal for a laser diode, an LD module for converting the LD electric signal to an LD optical signal, a PD module for converting a photodiode optical signal to a PD electric signal, a PD semiconductor IC for converting the PD electric signal to PD serial data, a circuit board having the connector and carrying LD semiconductor IC and PD semiconductor IC, an LD shielding plate and a PD shielding plate for electrically shielding the LD module and the PD module, respectively, a first frame and a second frame for holding the circuit board, LD module and PD module. In the fiber optic module, the connector is of a surface mounting type, leads of the LD and PD modules are connected to a side of the circuit board mounted with the connector, the circuit board has an LD variable resistor for adjusting a drive current of the LD module, the LD variable resistor is provided to a side of the circuit board opposite to the connector, the circuit board has a PD variable resistor provided to the side of the circuit board opposite to the connector for detecting a signal of the PD module, 3 signal processing semiconductor ICs or less are provided.

